

REMARKS

Claims 1-65 are pending. Claims 8, 42 and 49-52 are amended to more particularly point and distinctly Applicants' invention.

The Specification is amended to conform to the drawings and to update information regarding related patent applications, as required by the Examiner.

The Examiner objected to the drawings for including reference number 210 and FIG. 4, which are not reference in the Specification. As amended, the Specification now refers to reference number 210 at paragraph 18. FIG 4, which was originally described at paragraph 13, is now also described in paragraphs 70-79. (Paragraph numbers as published in Patent Application Publication 2003/0156665 A1) The Examiner's objection to the drawings is believed overcome.

The Examiner objected to Claims 8, 49-52 and 54-57 as reciting subject matter not supported by the Specification. Claims 8 and 49-52 are accordingly amended to overcome the Examiner's objection.

The Examiner rejected Claims 1, 18, 32 and 42 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent 6,137,847 ("Stott"). The Examiner states:

In figure 9, Stott et al discloses that the received signal is sent through a correlator. Subsequently, the signal is sent through to the coarse and fine synchronization stages where coarse subset values are used for fine synchronization. Furthermore, Stott et al discloses that a range of delay values produced by the fine phase synchronization (see item 96 in figure 9) are used in the correlator for:

... for receiving the data sample values and including a delay having a time period delay equal to the active symbol period, and a multiplier for receiving the data symbol values and a version thereof delayed by the delay, to form a complex product

signal, and a filter for filtering the complex product signal
(abstract)

The use of I and Q integrals are inherent in the correlation of a sinusoidal radio signal.

Applicants respectfully traverse the Examiner's rejection. Claim 1 recites an interpolation step that is neither disclosed nor suggested by Stott:

1. (Original) A method for determining one or more fine-tuned estimates of delay value associated with a received signal, the method comprising the computer-implemented steps of:

determining a range of delay values of interest associated with the received signal;

interpolating fine-grained values for I and Q correlation integrals by using a subset of coarse-grained calculations of I and Q correlation integrals; and

determining the one or more fine-tuned estimates of delay value based on the fine-grained values of I and Q correlation integrals.

(emphasis added)

As set forth in Stott's col. 6, lines 52-61, Stott does not disclose or suggest an interpolation step in its fine timing synchronization process:

The fine timing synchronization process corresponds to a full resolution of the correlation and the inter symbol recursive filtering but only in the region where the rising edge of the pulse structure is determined by the coarse process. This region called the fine window represents only 1/32 of the complete active period in 8K that is 224 complex sample store locations for the correlator and 224 complex samples for the recursive filtering. The task of fine timing synchronization is to determine more gradually and precisely the phase of the incoming symbol pulse.

Accordingly, Applicants respectfully submit that Claim 1 is allowable over Stott. As interpolation of coarse values are also recited in Claims 18, 32 and 42 (as amended), these

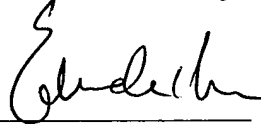
claims are therefore each allowable over Stott. Reconsideration and allowance of Claims 1, 18, 32 and 42 are therefore requested.

The Examiner rejected Claims 10 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Stott. The Examiner relied upon Stott to teach all limitations of these claims except the use of the receiver for GPS. However, as set forth above with respect to Claims 1 and 18, Stott fails to disclose or suggest the interpolation recited in Claims 1 and 18 from which Claims 10 and 24 depend. Accordingly, Applicants respectfully submit that Claims 10 and 24 are each also allowable over Stott. Reconsideration and allowance of Claims 10 and 24 are therefore requested.

The Examiner indicated allowable subject matters in Claims 2-9, 11-17, 19-23, 25-31, 33-41 and 43-65.

For the foregoing reasons, all claims (i.e., Claims 1-65) are believed allowable and their allowance is respectfully requested. If the Examiner has any question regarding the above, the Examiner is requested to call the undersigned Attorney for Applicants at 408-392-9250.

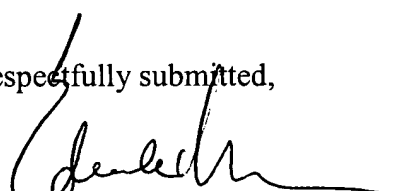
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Date of Signature

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